

Outlook for hybrid and electric vehicles - 2010

Hybrid and electric vehicles are in the spotlights today. They are prominently presented at car shows, they receive a lot of media attention, they are in the focus of many governmental programmes, and the general public is increasingly interested in this kind of vehicles. Are hybrid and electric vehicles on the verge of a breakthrough in the market? This document presents the views of hybrid and electric vehicle experts (IA-HEV, see box 1) collaborating under the framework of the International Energy Agency (IEA).

Early 2010 there is still a lot of uncertainty about the economic situation in the world. There are signs of recovery from the crisis, but on the other hand in many countries unemployment is still increasing. This situation also affects the automotive industry. Vehicle registrations have fallen in many countries during 2008 and 2009. This decline in registrations reflects a drop in sales, and recovery of the market is still fragile in many areas.

The increasing interest in electric propulsion for road vehicles may be an opportunity to get out of the crisis, but because the market for electric vehicles is in its infancy and budgets in the automotive industry to develop such vehicles are limited, there is much uncertainty about how this market will develop. Predictions vary widely for future electric vehicle sales, because the growth of total vehicle sales remains unclear, as the economies of some countries will take longer to recover than others from the 2008 financial crisis. Moreover, what share of these future sales will come from plug-in hybrid electric vehicles (PHEVs) and battery electric vehicles (BEVs) is also uncertain.

As a result, predictions for vehicle sales and the share of electric vehicles vary widely. Many factors influence the uptake of hybrid and electric vehicles in the market. Because of all these uncertainties, this year the IA-HEV outlook for

Box 1 - IA-HEV

IEA Implementing Agreement for co-operation on Hybrid and Electric Vehicle Technologies and Programmes

The current fourteen IA-HEV member countries are Austria, Belgium, Canada, Denmark, Finland, France, Italy, the Netherlands, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Executive Committee of the Agreement consists of people working for governmental bodies and research institutes, who are appointed by the governments of the IA-HEV member countries. This outlook is a synthesis of inputs from the IA-HEV Executive Committee members.

IA-HEV functions within a framework created by the International Energy Agency (IEA). Views, findings and publications of IA-HEV do not necessarily represent the views or policies of the IEA Secretariat or of all its individual member countries.

hybrid and electric vehicles does not give numerical estimates for market shares or vehicle numbers, but instead it presents the factors that are important and how they influence the market.

In different countries, and thus under different circumstances, different factors influence vehicle choice. The factors having an impact on hybrid and electric vehicle sales that are most often mentioned by IA-HEV member country delegates are presented below.

Important governmental measures with an impact on hybrid and electric vehicle development and deployment are:

- Strategies for clean energy technologies.
In case national governments have strategies for clean energy technologies in place, usually PHEVs and BEVs fit in these strategies. Vehicles running in electric mode have no tailpipe emissions, and when electricity is produced using solar, hydro or wind power the ‘well’-to-wheel vehicle emissions are very low.
- Funding of research and innovation in industry and research organisations.
Supporting research and innovation helps developing new technologies such as hybrid and electric vehicles for the market. It also contributes to national goals regarding energy efficiency, the environment, and the economy.
- Regulations and legislation.
The characteristics of products that are put on the market are strongly influenced by regulations and legislation. Hybrid and electric vehicles usually fit the rules for energy efficient road transport with low CO₂ emissions. Harmonisation of regulations between different countries and also standardisation enables economies of scale and thus lowers the hurdles for market introduction of hybrid and electric vehicles.
- Financial incentives.
Costs are a very important factor in making purchase decisions. Therefore appropriate financial incentives such as subsidies and tax reductions can be very effective in helping a new -and initially more costly- technology take off.
- Deployment and demonstration projects.
By supporting deployment and demonstration projects, governments contribute to the development of new vehicle technologies for the market. Besides testing the technology in practical applications, deployment and demonstration projects also help raising awareness of the general public because people actually see new, clean vehicles on the road.

Besides governmental measures, there are many other factors that have an impact on hybrid and electric vehicle deployment. The ones that are most often mentioned by the IA-HEV members are listed below. These factors are also important in IA-HEV non-member countries.

- Public awareness; popularity; acceptance; opinion.
When people are convinced of the advantages of a new technology, they will create a market pull. When demand for electric cars is large enough, industry will start producing such vehicles. Early adopters are ready to accept some limitations, but they also demonstrate the possibilities of a new technology. By talking about their experiences, they have an impact on the general opinion and may contribute to increase the popularity of unconventional products such as electric vehicles.
- Industry activity - availability of vehicles.
As long as there are no hybrid and electric vehicles available, governmental rules and incentives, and also market demand, cannot result in the deployment of such vehicles. In IA-HEV member countries such as Canada, the Netherlands and Spain, the availability of hybrid and electric vehicles is expected to be below demand for the coming years, and therefore limiting the deployment of this kind of vehicles in these markets.
- Infrastructure.
For the deployment of battery electric vehicles and plug-in hybrid electric vehicles, the presence of a public recharging infrastructure plays a role. Even though for the first group of electric vehicle owners, and for most of the trips, overnight battery charging from a standard outlet would be sufficient, the visibility of public recharging points significantly reduces the range anxiety of electric vehicle drivers.
- Further it can be mentioned that collaboration between the different stakeholders involved could lower the hurdles for deployment of electric vehicles. And of course the economic situation impacts the market for hybrid and electric vehicles.

Given the governmental programmes aiming at improving energy efficiency and reducing CO₂ emissions from road transport, given the current plans from industry to start producing plug-in and pure battery electric vehicles, and given the increasing interest in society for these types of vehicles, the IA-HEV Executive Committee is convinced that sales of hybrid and electric vehicles will grow and that they will form a substantial share of the worldwide road vehicle fleet in the future. However, the pace at which this will happen is uncertain. Due to the limited availability of these vehicles, their market share will remain low for the next few years. What will happen after that depends on the factors that are mentioned in this document.